

Rec'd EPSTEIN TO 18 MAR 1964

CLAIMS

REPLACED BY
ART 34/AMDT

1. A light emitting device, wherein a light emitting electrode and a cold cathode are disposed opposite to each other, wherein the light emitting electrode is constituted by a metal oxide structure having whiskers of a metal oxide.
2. The light emitting device according to Claim 1, wherein a band gap of the metal oxide constituting the whiskers is from 1.5 to 7.7 eV.
3. The light emitting device according to Claim 1 or 2, wherein a diameter of a cross-section of an approximate circle of the whisker is from 0.01 to 100 μm and a ratio of length of the whisker to the diameter of the cross-section of the approximate circle of the whisker is from 1 to 10000.
4. The light emitting device according to any one of Claims 1 to 3, wherein the whiskers are present in a density of from 0.1 to 10000 pieces per area of 10 $\mu\text{m} \times 10 \mu\text{m}$ on a surface of the metal oxide.
5. The light emitting device according to any one of Claims 1 to 4, wherein the whiskers comprise an element different from that of a main material which constitutes the whiskers.
6. The light emitting device according to any one of Claims 1 to 5, wherein the whiskers can be obtained by allowing the metal oxide to be epitaxially grown on a surface of a substrate.
7. The light emitting device according to any one of Claims

1 to 6, wherein zinc oxide is used as the main material which constitutes the whiskers.

8. The light emitting device according to any one of Claims 1 to 7, wherein a light emitting electrode is constituted by the metal oxide structure in which spaces between whiskers are filled with a material selected from among an organic substance, an inorganic substance and a metal.

9. The light emitting device according to any one of Claims 1 to 8, wherein the cold cathode is constituted by the metal oxide structure having the whiskers of the metal oxide.

10. The light emitting device according to any one of Claims 1 to 9, wherein the cold cathode is constituted by a carbonaceous material selected from the group consisting of a carbon nanotube, fullerene, diamond, graphite and a carbon fiber.

11. The light emitting device according to any one of Claims 1 to 10, wherein the light emitting electrode and the cold cathode are disposed in a vacuum chamber or a container having a gas sealed therein.

12. The light emitting device according to any one of Claims 1 to 10, wherein the light emitting electrode in a planar shape and the cold cathode in a planar shape are disposed opposite to each other in the container.

13. The light emitting device according to Claim 12, wherein a reflecting plate is provided on one side face of a space

defined by the light emitting electrode and the cold cathode.

14. The light emitting device according to Claim 11, wherein the light emitting electrode is disposed on an inner surface of the container and the cold cathode is disposed in a center portion of the container.